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ABSTRACT

This paper describes a computer-controlled simulation game designed to teach social skills to elementary school pupils. The major purposes of this man machine social system are to develop in students the ability to: (1) observe pupil behaviors in group problem-solving situations, (2) identify and analyze the relationship of these behaviors to the success of the group in its problem-solving task, and (3) generalize the implications of these observed behaviors to other settings. The game consists of three stages which correspond to the above objectives and represent an integrated instructional system in which pupils, counselors, and media components interact. In the first stage the pupil views video tapes which present a wide range of pupil behavior types in a group setting. The second stage requires the pupil to analyze his observations by interrogating a computer system. In the final stage students meet with a counselor in a group discussion to evaluate the information they have individually acquired. They examine alternative solutions to the problem and a concensus is achieved through an exchange of various socio-cultural views held by the participants. Implications of such a system for elementary school counseling are discussed. (RSM)

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COMPUTERIZED SIMULATED GAMES: A SOCIALIZATION TOOL FOR CHILD GUIDANCE

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One of the critical variables in the problem of effective learning climates is the quality of the interpersonal relationships among the participants. Likewise the effectiveness of these interpersonal relationships among pupils, and between pupils and teachers, are dependent upon many factors. One is the social skill of the individuals involved. In spite of this, systematic instruction in the socialization process is a commonly neglected part of the schooling experience. For example, children from varying cultural and socio-economic backgrounds are expected to learn, at one and the same time, the necessary acceptable social skills and the required cognitive behaviors. This expectation is held despite the fact that the former may be a prerequisite to the latter.

Those children whose behavior is unacceptable to the prevailing group norm must somehow learn acceptable behavior. These learnings can occur either systematically or through trial and error encounters. If the learning occurs through trial and error, the child's perceptions of his worth and his competence are modified, often with detrimental consequences for the child's entire educational experience.

Minority groups are more concerned than ever before in the education of their children. They have not only rejected the notion that their children cannot learn, but they have insisted that teachers do the same (Farmer, 1971). For, if a child is to learn, teachers must be confident in the child's ability to learn (Rosenthal and Jacobson, 1968). Often the opinions of teachers concerning the learning ability of children

are based more in observed social behavior than in intellectual potential. Teachers' judgments of a child's ability to learn were found to be related to such factors as the condition of his clothing, the odor of his body, the condition of his hair, and his use of language. In other words, teacher judgments were related to the child's social class membership (Rist, 1970).

At least two options exist for altering the teacher's decision-making base. One option requires a change in the teacher's behavior and the other would call for behavior changes in the child. It was with the latter option that we were concerned, and social skills were the focus of the desired behavior change. For these reasons an attempt was made toward providing systematic instruction in those social skills compatible with the prevailing social class norm.

I. PROBLEM DESCRIPTION

Teaching social skills to pupils of varying backgrounds introduces a number of problems not generally accomodated by typical classroom situations. Many social techniques employed by members of the dominant culture in the classroom are totally unfamiliar to some students. Such students often experience difficulty in acquiring these skills in a climate where training resources are frequently non-existent or occur only as incidental learnings. This lack of systematic instruction increases the complexity of identifying and acquiring the appropriate social skills.

Computer-controlled simulation offers several advantages for an instructional system designed to teach social skills which are adaptable to individual needs and responses. This process, for the social scientist, involves the building of an operational model (Dawson, 1962). The model requires that pertinent variables be abstracted, and that their interrelationships be defined, thereby reducing the complexity of the learning activity within the context of a lifelike situation. Computer simulation permits active pupil involvement and vicarious decision-making on an individual basis (Snyder, 1962). Both the goals and motivation are inherent in a gaming model (Coleman, 1967). Once a series of games are developed, both the element of time and selection of simulated experiences can be controlled. In the case of systematic training in social skills behavioral problems can be anticipated and the game serves a preventive as well as a remedial function.

This paper describes a man-machine social system in which pupils, counselors, and media components are interrelated. Video tapings present behavioral roles of pupils in the process of group problem solving. Each student responds to the tapes by interrogating a computer system. At the final stage of the game the players meet with the counselor in a group discussion to evaluate the information they have individually acquired from their interactions with the media components. This system responds to Saettler's (1968) recommendation that all components of the instructional process be integrated into a system, perhaps computer controlled, that is capable of providing individualized instruction for each learner-communicant.

II. SYSTEM DEFINITION

Design

The major purposes of the system are to develop in students the ability (1) to observe pupil behaviors in group problem-solving situations; (2) to identify and analyze the relationships of these behaviors to the success of the group in its problem-solving task; and (3) to generalize the implications of these observed behaviors to other settings. The three system objectives correspond to the stages in the simulated game described below.

For the purposes of this system, Weitz's (1964) four stages of problem solving behavior, (1) problem identification, (2) resolution, (3) implementation, (4) evaluation and generalization, were drawn on to develop the game structure. The computer simulation also parallels Suchman's (1963) stages of inquiry: searching, data processing, discovery and verification.

Stage I. During this stage the student is in the act of searching. He is presented with video tapings of pupils who are involved in the process of group problem solving and is instructed to pretend he is a member of the group. Observation of other pupil behaviors is the major objective of this stage.

Stage II. At this stage in the game the pupil assimilates data within the structure of the social system presented to him on the tapes. As the student interrogates the computer, he must analyze the situation previously presented on the video tapes, decide on the progress of the group, and relate student behaviors to the process.

Stage III. After the pupils have viewed the tapes and interacted with the computer in Stages I and II, they meet in a group discussion with other students and a counselor to re-evaluate their individual analysis. During this phase the pupils synthesize their collective views concerning the specific situation and generalize the implications of these behaviors to other settings.

Materials Development

The procedures followed in developing the simulated game are outlined below.

1. Video tapings were made of several groups engaged in planning a project. The composition of the groups was varied by grade level (third-fifth), sex and race. A sampling of behaviors was selected from this pool of tapes for utilization in Stage I of the game.

2. Those behaviors observed on the video tapings were defined by four categories: high vs. low involvement and individual vs. group focus. The behaviors abstracted in the two-way classification scheme are common to systems for recording interaction behaviors in group discussions (Clayton, Cryon, Wiles, 1971; Bales, 1950). The general features of the four general behavioral types are illustrated as follows:

Type of Involvement	Level of Involvement: Low	Level of Involvement: High
Individual	Withdrawn No overt response to group task	Disagrees Shows antagonism
Group	Group conforming behaviors Gives, asks or responds by accepting, concurring, complying, confirming A factual orientation	Self initiating-facilitative behaviors Gives, asks or responds by encouraging, rewarding, and respecting the autonomy of others A process orientation

These categories were used as a basis for constructing questions and response alternatives on the computer in Stage II.

3. The third step in the construction of the game was to translate those behaviors abstracted from the tapes into a context which was meaningful and understandable to elementary school children. Children from several classrooms were asked to respond to questions concerning the kinds of children with whom they liked and disliked to work. Their responses were used in constructing questions and response alternatives which were employed in Stage II where the student interrogates the computer.*

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*The instructional language used to adapt these games to the computer is named Multied. This is an Algol adaptation of Coursewriter II, which is IBM's instructional language, and is operational on the Burroughs B5500 computer. The language was developed under Project No. 9-C-016, Computer-Simulated Law Games for Teaching of Logical Thought in Social Studies, a cooperative research project between the Bureau of Educational Research, University of Virginia and the U.S. Office of Education.

Finally, the pupil behaviors were integrated with the process of group problem solving.

In summary, the three stages of the game represent an integrated instructional system in which pupils, counselors and media components interact. In the first stage, the pupil is presented with a range of pupil behavior types as they work in groups. The second stage requires the pupil to analyze his observations of pupil behaviors acquired in the first stage. At the third stage the pupil is given the opportunity to synthesize and integrate the information he has acquired. In this final stage groups of players work together as they describe the target event to each other and examine alternative solutions to the problem. A concensus is achieved through an exchange of various socio-cultural views held by the participants. This open forum discourse incorporates the cultural and social logic into the critical thinking process individually exercised in the first two stages.

III. IMPLICATIONS FOR ELEMENTARY SCHOOL COUNSELORS

As Wrenn has pointed out, the aim of counseling is not to encourage conformity, rather it is to encourage individualism. But prerequisite to individuality is an understanding of the present societal conditions and an appreciation of the need to live within them (Wrenn, 1962). The elementary school counselor in helping children systematically acquire these learnings is reflecting Wrenn's means to the end, while recognizing that it is not the end itself. If the child can

be helped to unlearn his self-defeating behaviors and replace then with ego enhancing behaviors, the counselor has increased the child's opportunities for ultimately realizing his individuality.

A child's perceptions of his worth and competence are critical influences on his intellectual functioning, and these perceptions are learned from those with whom he interacts. One of the groups from whom the child learns his self-perception is his classmates. Should they perceive him negatively, he may be excluded from active participation in the group. Such group exclusions generate damaging effects, not merely for the child in question, but for the entire classroom learning environment.

The effectiveness of the learning environment is necessarily reduced whenever the total membership of a classroom is not provided opportunities to develop a knowledge and understanding of, and thereby a respect for, differing cultures. Elementary school classrooms are not only a likely forum for such learnings, but they are seen as a critical level at which such insights should be acquired. For it has been repeatedly observed that attitudinal shifts and increasing age are negatively correlated. Attitudes formed early in life are difficult if not impossible to change at a later point in life. It therefore becomes crucial for such learnings as self-acceptance, acceptance of others, and the concept of interdependence to occur at the elementary school level.

The described system is proposed as a technique counselors

can employ to help children acquire such learnings. In addition, it permits a counselor to test his tentative hypotheses or hunches concerning a child's social behavior without subjecting the child to the more difficult or possibly damaging encounter in the real classroom environment. This child's encounters with a simulated experience then become his own private trial and error encounters; unobserved, unsanctioned and thereby undemeaning.

In addition, simulated experiences provide a realistic and feasible opportunity for children to examine a wide range of social behaviors and critically analyze the productivity of each. Further, children are provided the opportunity to make their own independent decisions and discuss the goodness of their choices with others. In so doing they can then clarify for themselves a line of reasoning they may or may not have employed.

It was observed earlier that one solution to the problem of increasing a teacher's confidence in a child's ability to learn was to change the teacher's decision-making base. Although the described system does not deal directly with this problem, it is felt that the system does have utility for elementary school counselors who must deal with the problem. In the counselor's role of assisting and supporting teachers in the developmental growth of children (Dinkmeyer and Caldwell, 1970), he is necessarily responsible for helping teachers become more effective with all kinds of children (Bower, 1965; Faust, 1968; Meeks, 1963).

Multicultural awareness implies an understanding of the social logic employed by various groups. If the described system is used by the counselor as feedback to the teacher, the effectiveness of the teacher can be increased. For in understanding why a child behaves as he does, a teacher can begin to understand the problems generated for the child who is employing his particular logic. In addition, it is felt that an understanding of the problems of the child will generate in the teacher a confidence in the child's ability to learn.

The elementary school counselor is expected to provide guidance for all children and thereby make an impact on the entire school environment. If he would truly respond to this obligation, he must be concerned with teachers and children alike. Further, if learning is impaired by negative self perceptions, and negative self perceptions do occur from a lack of understanding, then the counselor's task seems self-evident. He must avail himself of all possible opportunities to increase the understanding between and among differing socio-cultural groups. The described system is proposed as one such possibility.

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